Message

From: Cope, Ben [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=497EFADD936E4D378225116B8F50FD3F-COPE, BEN]
Sent: 11/19/2014 9:51:09 PM
To: Fullagar, Jill [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=7ba061353c314b40a14a8be1ee382ae3-Gable, Jill]
Subject: RE: OA: Editorial by Bill Dewey of Taylor Shellfish

Yeah, his kudos to the state (and others) for stepping up was nice to see.

From: Fullagar, Jill
Sent: Wednesday, November 19, 2014 1:32 PM
To: Cox, Michael; Cope, Ben
Subject: RE: OA: Editorial by Bill Dewey of Taylor Shellfish

Thanks for forwarding. Nice to see someone isn't yelling at us!

*****note new name and email
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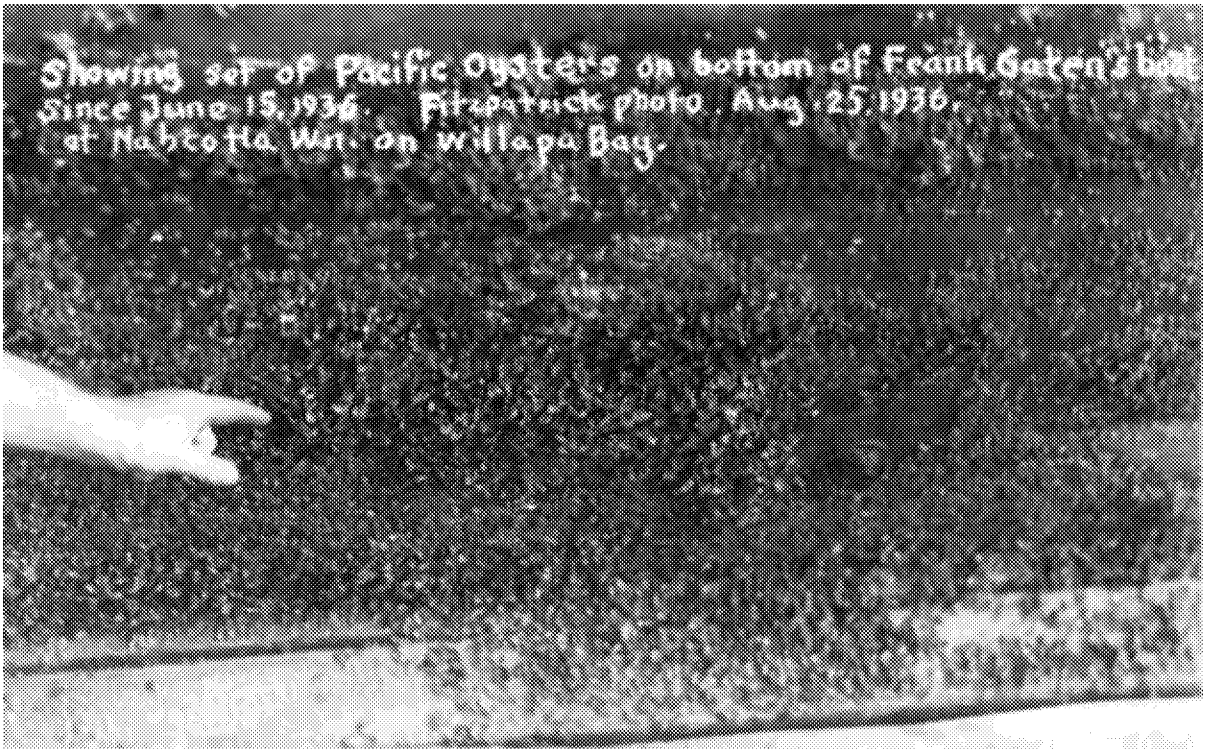
From: Cox, Michael
Sent: Wednesday, November 19, 2014 10:36 AM
To: Szelag, Matthew; Labiosa, Rochelle; Fullagar, Jill; Anderson-Carnahan, Linda; Reichgott, Christine; Fontaine, Thomas; Cope, Ben; Bonifaci, Angela; Eaton, Thomas; Bonifacino, Gina; Cora, Lori; Croxton, Dave; Kelly, Joyce; Duncan, Bruce; Nelson, Walt; Brown, Cheryl A.; VanHaagen, Paula; Allnutt, David; Pacella, Stephen; Rappoli, Brian; Dunbar, Bill
Subject: OA: Editorial by Bill Dewey of Taylor Shellfish

Guest Column: Ocean acidification seriously threatens Willapa's shellfish industry

Published: November 18, 2014 9:07AM

OBSERVER FILE PHOTO



Observer file photo

A 1936 photo shows how oysters naturally colonize available surfaces, including boats, when natural conditions are optimal. Manmade changes in ocean chemistry have made such oyster sets rare in this century.

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Oyster company: ocean acidification is a real threat

The Chinook Observer printed a Nov. 5 guest opinion by Todd Meyers with the Washington Policy Center regarding ocean acidification that got the facts wrong. Mr. Meyers suggests in his blogs and guest opinion that Gov. Jay Inslee and Washington Department of Ecology Director Maia Bellon are not in agreement with each other or their scientists about ocean acidification. That's not true. We worry the message readers are taking away from Mr. Meyers' "gotcha" game is that ocean acidification is not happening.

Don't be distracted. Ocean acidification is real and it is impacting oysters and other marine life in Washington now.

The confusion stems from statements made by the federal Environmental Protection Agency (EPA) and Ecology lawyers defending their clients against a 2013 lawsuit filed by the Center for Biological Diversity (CBD). CBD sued EPA for failing to address ocean acidification they claimed was killing oysters in Oregon and Washington and threatening a wide range of other sea life.

While briefs filed in response to the litigation have confused the issue, the EPA, Gov. Inslee and Ecology Director Bellon all agree ocean acidification is occurring and poses a very serious threat to marine ecosystems. The Legislature agrees as well. In 2013, acting on recommendations from Gov. Christine Gregoire's Ocean Acidification Blue Ribbon Panel, lawmakers appropriated $1.8 million to establish an Ocean Acidification Center at the University of Washington and the Marine Resources Advisory Council in Gov. Inslee's office to advise the state on its ongoing response to ocean acidification.

You can learn more about the important work of the Marine Resources Advisory Council here: www.ecy.wa.gov/water/marine/oceanacidification.html.

Chinook Observer readers should be concerned about ocean acidification. This region produces roughly one quarter of the nation's oysters, and oyster farming is the leading private employer in Pacific County. Shellfish farms and employees pump millions of dollars annually into the region's economy buying supplies, cars, trucks, boats, motors, groceries and homes.

Real-world observations

Mr. Meyer's opinion attempts to cast doubt on whether billions of oyster larvae are dying due to ocean acidification. Let me share our observations to help inform your own opinion on whether he is right. Beginning around 2007 two of the four main shellfish hatcheries on the west coast began to experience repeated failures in their oyster larvae production. Beginning in 2005 we entered a seven-year period of failed natural recruitment of oysters in Willapa Bay.

One of the hatcheries was ours in Dabob Bay on the Hood Canal. Built in 1989, Taylor Shellfish successfully produced billions of oyster larvae annually there for 15 years. There were occasional unexplained failures that until 2007 were infrequent. Starting in 2007 the failures became more the norm and were severely impacting production.

At the same time the Whiskey Creek hatchery in Netarts Bay, Oregon experienced a similar pattern. Owners Mark Wiegardt and Sue Cudd, arguably some of the most experienced hatchery operators in the world, had successfully produced billions of oyster larvae in their facility for 25 years. By 2008 and 2009 oyster larvae production in both facilities plummeted by about 75 percent.

These hatchery problems on top of no natural recruitment since 2005 created a major shortage of oyster seed. Shellfish growers understandably were in a panic.

Remarkable response

The response from our state and federal elected officials, agency personnel, scientists and university scientists has been nothing shy of remarkable. Collaborative research coupled with the deployment and support for sophisticated monitoring equipment has advanced our knowledge dramatically in a very short period of time. Without a doubt, this response has saved our industry — at least for now.

Through this collaboration we have come to understand that while pH and carbon dioxide levels are important, what really matters for oyster larvae and other calcifiers is the availability of carbonate ions. These are the building blocks for their shells and the availability of them diminishes with ocean acidification.

Natural factors associated with summer upwelling off our coast can result in conditions detrimental to the development and growth of oyster larvae. Research suggests these conditions occurred about 11 percent of the time prior to the industrial revolution. Today, the carbon dioxide from 250 years of burning fossil fuels has made the ocean surface waters 30 percent more acidic and reduced the availability of carbonate ions by 16 percent. Corrosive conditions for our oyster larvae are now occurring an estimated 33 percent of the time!

The natural variability no doubt accounts for some of our previously unexplained hatchery die-off. Typical combined production from the Whiskey Creek and Taylor Shellfish hatcheries prior to 2007 was about 10-12 billion oyster larvae a year. Clearly the 75 percent loss of production we were experiencing by 2009 was billions of larvae. How much of that was attributed to anthropogenic carbon dioxide versus natural variability is not so easy to determine. Based on the research and monitoring by leading chemical oceanographers at the University of Washington, Oregon State University, and the National Oceanic and Atmospheric Administration I am convinced it was billions and that Gov. Inslee and Ecology Director Bellon were correct in their statements.

The most troubling message from the federal and academic scientists studying ocean acidification is not that ocean acidification is killing our oysters. It is that the water currently upwelling off our coasts causing these problems was last at the surface of the Pacific Ocean absorbing carbon dioxide 30-50 years ago. So even if we can convince the world to reverse course on carbon dioxide emissions our waters will continue to get more acidic along Washington's coast for decades to come because of what is already absorbed by the Pacific Ocean and heading our way.

Today, in response to sophisticated real-time monitoring hatcheries are injecting sodium carbonate into their incoming water to boost the carbonate ion concentration. While this has allowed us to recover our lost oyster larvae production we are still having difficulties getting from the early free-swimming planktonic larvae stage to 1-2 mm seed for our nurseries. While we are expanding monitoring and water treatment capacity in our hatchery and nursery facilities, university and industry scientists are exploring whether breeding is an option to work around the increasingly corrosive waters.

Taylor Shellfish has a hatchery in Hawaii where we have not seen the same ocean acidification related problems. We have been expanding production capacity in Hawaii to offset losses in Washington. A few years ago Willapa Bay's Goose Point Oyster Company started up a hatchery in Hawaii in response to the West Coast oyster seed shortage.

All these steps demonstrate how the shellfish industry is adapting to the changing seawater chemistry.

Regardless of what Mr. Meyers thinks, ocean acidification is very real for oyster farmers. We are grateful to Gov. Inslee, Gov. Gregoire, Director Bellon and our congressional delegation for their leadership and support on this critical issue.

Bill Dewey is Director of Public Policy and Communications for Shelton based Taylor Shellfish Farms.

This region produces roughly one quarter of the nation's oysters, and oyster farming is the leading private employer in Pacific County.

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